CLAIMS

1. An electronic monitoring circuit provided within an integrated circuit hardware product for assisting a debugger system in debugging an electronic circuit design within the integrated circuit hardware product, said electronic monitoring circuit being automatically created for use with the electronic circuit design and being coupled to the electronic circuit design within the integrated circuit hardware product, said electronic monitoring circuit comprising:

a trigger processing unit for monitoring trigger events and issuing a trigger action based on one or more of the monitored trigger events;

at least one probe circuit coupled between the integrated circuit hardware product and said trigger processing unit;

a configuration register that stores configuration information for use in configuring said trigger processing unit or said at least one probe circuit; and

a communication controller operatively connected to said configuration register to provide external access to said configuration register by the debugger system.

2. An electronic monitoring circuit as recited in claim 1, wherein at least one probe circuit couples to a region of the electronic circuit design within the integrated circuit hardware product to yield one or more signals for sampling or patching.

3. An electronic monitoring circuit as recited in claim 1, wherein said electronic monitoring circuit further comprises:

a status register that stores status information pertaining to the electronic circuit design within the integrated circuit hardware product, and

wherein said communication controller is operatively connected to said status register to provide external access to said status register by the debugger system.

4. An electronic monitoring circuit as recited in claim 1, wherein said electronic monitoring circuit further comprises:

an analog-to-digital converter coupled between said at least one probe circuit and the electronic circuit design within the integrated circuit hardware product to provide analog-to-digital conversion.

5. An electronic monitoring circuit as recited in claim 1, wherein said at least one probe circuit includes a plurality of probe circuits.

6. An electronic monitoring circuit as recited in claim 1, wherein said plurality of probe circuits include at least one of:

a sampling circuit configured to sample at least one of the signals; and

a patching circuit configured to modify at least one of the signals.

7. An electronic monitoring circuit as recited in claim 1, wherein said electronic monitoring circuit further being automatically coupled to the electronic circuit design within the integrated circuit hardware product.

8. An electronic monitoring circuit as recited in claim 1, wherein said electronic monitoring circuit is derived from a HDL description of the electronic circuit design.

9. An electronic monitoring circuit as recited in claim 1, wherein said electronic monitoring circuit is automatically created by an instrumentor.

10. An electronic monitoring circuit as recited in claim 1, wherein the monitored trigger events include current trigger events and previous trigger events.

11. An electronic monitoring circuit provided within an integrated circuit hardware product for assisting a debugger system in debugging an electronic circuit

design within the integrated circuit hardware product, said electronic monitoring circuit being automatically created for use with the electronic circuit design and being coupled to the electronic circuit design within the integrated circuit hardware product, said electronic monitoring circuit comprising:

a trigger processing unit for monitoring trigger events and issuing a trigger action based on one or more of the monitored trigger events;

at least one probe circuit coupled between the integrated circuit hardware product and said trigger processing unit;

a status register that stores status information pertaining to the electronic circuit design within the integrated circuit hardware product, and

a communication controller operatively connected to said configuration register to provide external access to said status register by the debugger system.

12. An electronic monitoring circuit as recited in claim 11, wherein at least one probe circuit couples to a region of the electronic circuit design within the integrated circuit hardware product to yield one or more signals for sampling or patching.

13. An electronic monitoring circuit as recited in claim 11, wherein said electronic monitoring circuit further comprises:

an analog-to-digital converter coupled between said at least one probe circuit and the electronic circuit design within the integrated circuit hardware product to provide analog-to-digital conversion.

14. An electronic monitoring circuit as recited in claim 11, wherein said at least one probe circuit includes at least one of:

a sampling circuit configured to sample at least one of the signals; and

a patching circuit configured to modify at least one of the signals.

15. An electronic monitoring circuit as recited in claim 11, wherein said electronic monitoring circuit is derived from a HDL description of the electronic circuit design.

16. An electronic monitoring circuit as recited in claim 11, wherein said electronic monitoring circuit is automatically created by an instrumentor.

17. An electronic monitoring circuit as recited in claim 11, wherein the monitored trigger events include current trigger events and previous trigger events.

18. An electronic monitoring circuit provided within an integrated circuit hardware product for assisting a debugger system in debugging an electronic circuit design within the integrated circuit hardware product, said electronic monitoring circuit comprising:

trigger processing means for monitoring trigger events and issuing a trigger action based on one or more of the monitored trigger events;

at least one probe means for monitoring at least one signal of the electronic circuit design within the integrated circuit hardware product; and

communication means for providing external access to said electronic monitoring circuit by the debugger system.

19. An electronic monitoring circuit as recited in claim 18, wherein said electronic monitoring circuit further comprises:

configuration means for storing configuration information for use in configuring said trigger processing means or said at least one probe means.

20. An electronic monitoring circuit as recited in claim 19, wherein said communication means provides external access to said configuration means.

21. An electronic monitoring circuit as recited in claim 18, wherein said electronic monitoring circuit further comprises:

status register means for storing status information pertaining to the electronic circuit design within the integrated circuit hardware product.

22. An electronic monitoring circuit as recited in claim 21, wherein said communication means provides external access to said status register means.

23. An electronic monitoring circuit as recited in claim 18, wherein said electronic monitoring circuit is derived from a high-level HDL description of the electronic circuit design.

24. An electronic monitoring circuit as recited in claim 18, wherein the monitored trigger events include current trigger events and previous trigger events.

25. An integrated circuit product, comprising:

circuitry that implements functionality of said integrated circuit product; and

customized instrumentation circuitry that enables internal signals produced by said circuitry to be examined and/or modified.

26. An integrated circuit product as recited in claim 25, wherein said circuitry includes analog and digital portions, and

wherein said customized instrumentation circuitry enables internal signals produced in either the analog or digital portions of said circuitry to be monitored or patched.

27. An integrated circuit product as recited in claim 25, wherein said circuitry includes an electronic design, and

wherein said customized instrumentation circuitry is customized based on the electronic design associated with said circuitry.

28. An integrated circuit product as recited in claim 25, wherein said circuitry includes an electronic design, and

wherein said customized instrumentation circuitry is customized based on a user's desired scope of coverage and the electronic design associated with said circuitry.